

REMARKS/ARGUMENTS

Applicant has studied the Office Action dated December 13, 2004 and has made amendments to the claims. It is submitted that the application, as amended, is in condition for allowance. By virtue of this amendment, claims 1-21 are pending. Claim 21 has been added and claims 1, 3, 15 and 19 are amended. Reconsideration and allowance of the pending claims in view of the above amendments and the following remarks is respectfully requested.

In the Office Action, the Examiner:

- (page 2) objected to the Information Disclosure Statement filed January 30, 2004 for failure to comply with 37 CFR § 1.98(a)(2);
- (page 2) rejected claims 3-5 and 15-17 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; and
- (pages 2-4) rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Tamba (U.S. Patent No. 5,594,383).

(Page 2) Information Disclosure Statement

The Examiner objected to the Information Disclosure Statement filed January 30, 2004 for failure to comply with 37 CFR § 1.98(a)(2). A new information disclosure statement, along with a legible copy of each listed reference is submitted and attached with this Amendment. The Information Disclosure Statement now complies with the requirements of 37 CFR § 1.98(a)(2). The Examiner is respectfully requested to carefully consider all the information listed.

(Page 2) Rejection under 35 U.S.C. §112

The Examiner rejected Claims 3-5 and 15-17 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. Specifically, the Examiner stated that “it is not clear which ‘intrinsic drain-source resistance’ is intended.”

Applicant has amended claims 3 and 15 to remove the word “intrinsic.” In view of the amendment to claims 3 and 15, it is submitted that the rejection of claims 3 and 15, under 35 U.S.C. § 112, second paragraph, has been overcome. Claims 4 and 5 depend from claim 3 and claims 16 and 17 depend from claim 15. Applicant requests that the Examiner withdraw the rejection of claims 3-5 and 15-17.

(Pages 2-4) Rejection under 35 U.S.C. §103(a)

As noted above, the Examiner rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Tamba (U.S. Patent No. 5,594,383).

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. Independent claim 1 recites, *inter alia*:

a transconductance differential amplifier stage **mounted in an open loop** including:
a first differential input and a second differential input, and
a first differential output and a second differential output,
with the first differential input and the second differential input
having a given frequency range;
a passive circuit **connected between the first differential output and the second differential output**, the passive circuit for providing low-pass filtering of the differential amplifier stage whose cut-off frequency is below the frequency range to be amplified; and
a control element for controlling a bias point of the differential amplifier stage so as to regulate a gain thereof. (emphasis added)

Independent claim 13 recites, *inter alia*:

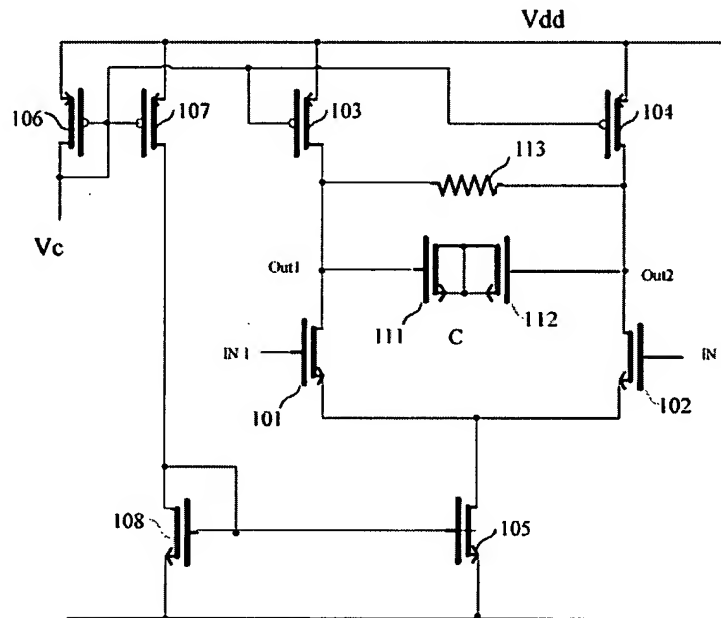
a transconductance **differential** amplifier stage **mounted in an open loop** including:
a first differential input and a second differential input, and
a first differential output and a second differential output,
with the first differential input and the second differential input
having a given frequency range;
a low-pass filter for providing low-pass filtering of the differential amplifier stage, the low-pass filter with a cut-off frequency below the

frequency range to be amplified, the low-pass filter including a passive circuit **connected between the first differential output and the second differential output**; and

a control element for controlling a bias point of the differential amplifier stage so as to regulate a gain thereof. (emphasis added)

FIG. 1 of the instant application (shown below) clearly shows a first output node (Out 1) located between the drains of a first and third transistor 101 & 103 and a second output node (Out 2) located between a second and fourth transistor 102 & 104, respectively. As can also be seen in the figure, the first input (IN 1) is **not** connected to the first output (Out 1) and the second input (IN 2) is not connected to the second output (Out 2). This is because, as recited in claims 1 and 13, the differential amplifier is **mounted in an open loop**.

Fig. 1



The Tamba reference discloses an integrable filter circuit, which consists of a gain controllable amplifier. However, contrary to the present invention, the Tamba amplifier is not used in a differential structure and is not used in an open loop. Tamba actually *teaches away from* an open loop structure. Tamba recites: "In the filter circuit of the present application, it is desirable that the differential amplifier has a single-ended output. In the differential amplifier of the embodiment, therefore, a non-inverting input terminal (in+) and the inverted output terminal (out-) are connected so that the current

(I_{out}) flowing in the direction opposite to that of the non-inverted current outputted from the non-inverted output terminal (out- [sic]) may be absorbed from the non-inverting input terminal (in+)." Tamba, col. 5, lines 45-54. The Tamba circuit is shown in FIGs. 1 and 2 below.

FIG. 1

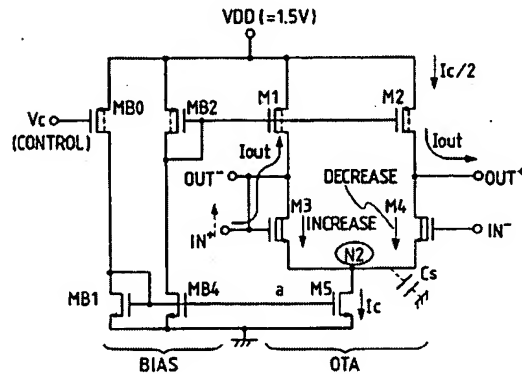
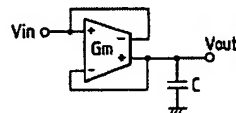


FIG. 2



The circuit shown in FIGs. 1 & 2 of Tamba, and described in the paragraph above, is not a differential amplifier in an open loop configuration. The inverted output (OUT^-) is shorted to the non-inverting input (IN^+). Tamba *teaches away* from "a differential amplifier stage mounted in an open loop," as recited in claims 1 and 13 of the instant application, and one of skill in the art would turn away from using the Tamba system in an open loop. Furthermore, the circuit in Tamba has a single output, V_{out} . Therefore, Tamba also *teaches away from* "a passive circuit connected between the first differential output and the second differential output," as recited in the claims 1 and 13 of the instant application. Prior art that *teaches away* is per se demonstration of lack of prima facie obviousness.¹

¹ See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Clearly, Tamba does not show a “**differential amplifier stage mounted in an open loop** ... the low-pass filter including a passive circuit **connected between the first differential output and the second differential output**” as recited in amended claim 1 of the instant application.

Amended claim 19 recites, *inter alia*:

 a first differential output node connecting the drains of the first and third transistors, the first node isolated from the gate of the first transistor;

 a second differential output node connecting the drains of the second and fourth transistors, the second node isolated from the gate of the second transistor;

 a low-pass filter for providing low-pass filtering of the first transistor and the second transistor, the low-pass filter with a cut-off frequency below the frequency range to be amplified, the low-pass filter including a passive circuit connected between the first and second differential output nodes

Claim 19 has been amended to further clarify the present invention. FIG. 1 of the instant application depicts the circuit claimed in claim 19. The inputs (gates, IN 1 & IN 2) of the first transistor (101) and the second transistor (102) are not connected to the drains (Out 1 & Out 2) of the first and second transistors.

In contrast, as can be seen in FIGs. 1 & 2 of Tamba and as stated above, Tamba *teaches away* from this configuration. Tamba expressly teaches that the inverted output (OUT) should be shorted to the non-inverting input (IN⁺) and that there should be a single output. Therefore, Tamba *teaches away from* the configuration of claim 19 and away from “a low-pass filter...including a passive circuit connected between the first and second differential output nodes.” Again, prior art that teaches away is per se demonstration of lack of prima facie obviousness.²

It is accordingly believed to be clear that Tamba neither shows nor suggests the features of claims 1, 13, or 19. Claims 1, 13, and 19 are, therefore, believed to be

² See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on either claim 1, 13 or 19.

Continuing further, when there is no suggestion or teaching in the prior art for a differential amplifier stage mounted in an open loop or a low-pass filter between a pair of differential amplifier outputs, the suggestion can not come from the Applicant's own specification. The Federal Circuit has repeatedly warned against using the Applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings of the prior art. See MPEP § 2143 and *Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 USPQ2d 1788 1792 (Fed. Cir. 1988) and *In re Fitch*, 972 F.2d 160, 12 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). The prior art reference Tamba does not even suggest, teach or mention an open loop configuration. Accordingly, claims 1, 13, and 19 distinguish over Tamba for this reason as well.

Finally, newly added claim 21 recites limitations that are similar to independent claim 1. Specifically, newly added claim 21 recites “a differential amplifier stage **mounted in an open loop**” and “a passive circuit **connected between the first differential output and the second differential output.**” As stated above, for independent claim 1, Tamba clearly *teaches away* from this configuration. Accordingly, claim 21 is patentable over Tamba and allowance of claim 21 is respectfully requested.

CONCLUSION

The remaining cited reference has been reviewed and is not believed to affect the patentability of the claims as amended.

In this Response, Applicant has amended certain claims. In light of the Office Action, Applicant believes these amendments serve a useful clarification purpose, and are desirable for clarification purposes, independent of patentability. Accordingly, Applicant respectfully submits that the claim amendments do not limit the range of any permissible equivalents.

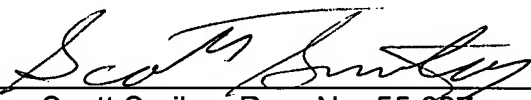
Applicant acknowledges the continuing duty of candor and good faith to disclosure of information known to be material to the examination of this application. In accordance with 37 CFR §1.56, all such information is dutifully made of record. The foreseeable equivalents of any territory surrendered by amendment are limited to the territory taught by the information of record. No other territory afforded by the doctrine of equivalents is knowingly surrendered and everything else is unforeseeable at the time of this amendment by the Applicant and his attorneys.

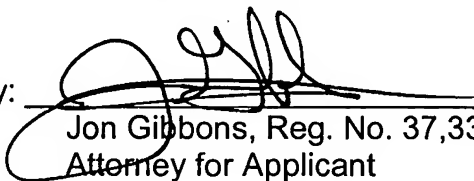
Applicant respectfully submits that all of the grounds for rejection stated in the Examiner's Office Action have been overcome, and that all claims in the application are allowable. No new matter has been added. It is believed that the application is now in condition for allowance, which allowance is respectfully requested.

PLEASE CALL the undersigned if that would expedite the prosecution of this application.

Respectfully submitted,

Date: June 13, 2005

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